

**KNOWLEDGE, ATTITUDE AND PRACTICE
TOWARDS ACNE VULGARIS AMONG
ADOLESCENTS IN SECONDARY SCHOOLS IN
DISTRICT OF KOTA BHARU, KELANTAN**

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DISTRICT OF KOTA BHARU, KELANTAN**

by

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**Dissertation submitted in partial fulfilment of the requirements
for the degree of
Bachelor in Nursing**

August 2025

DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated and duly acknowledged. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia the right to use the dissertation for teaching, research and promotional purposes.



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“NUR ALA AFA’ BINTI ZULKEFALY”

Date: ...3 August 2025...

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LIST OF ABBREVIATIONS

AV	Acne Vulgaris
eRAS	Electronic Research Application System
HBM	Health Belief Model
HREC	Human Research Ethics Committee
KAP	Knowledge, Attitude, and Practice
PPSG	Pusat Pengajian Sains Pergigian
PPSK	Pusat Pengajian Sains Kesihatan
SPSS	Statistical Package for the Social Sciences
USM	Universiti Sains Malaysia
WHO	World Health Organization

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**PENGETAHUAN, SIKAP, DAN AMALAN TERHADAP JERAWAT
VULGARIS DALAM KALANGAN REMAJA DI SEKOLAH MENENGAH DI
DAERAH KOTA BHARU, KELANTAN**

ABSTRAK

Jerawat vulgaris ialah satu keadaan dermatologi yang biasa berlaku dan memberi kesan ketara kepada remaja di seluruh dunia, terutamanya semasa akil baligh, iaitu apabila berlaku perubahan hormon yang ketara. Walaupun ia bukan penyakit yang mengancam nyawa, jerawat boleh memberi kesan mendalam terhadap kesejahteraan psikologi, emosi, dan sosial individu, yang sering membawa kepada masalah seperti kurang keyakinan diri, keresahan, dan kemurungan. Di Malaysia, jerawat vulgaris kekal sebagai satu kebimbangan yang meluas dalam kalangan remaja yang masih bersekolah, namun kajian yang memberi tumpuan kepada tahap pengetahuan, sikap, dan amalan mereka terhadap pengurusan jerawat masih terhad. Kajian ini dilakukan bertujuan untuk mengkaji tahap pengetahuan, sikap dan amalan terhadap jerawat vulgaris dalam kalangan remaja sekolah menengah di daerah Kota Bharu, Kelantan. Satu tinjauan keratan rentas dilakukan terhadap 344 orang pelajar sekolah di dua buah sekolah di daerah Kota Bharu, Kelantan menggunakan kaedah persampelan berstrata dan mudah. Data dikumpulkan melalui soal selidik yang dijawab sendiri oleh responden. Analisis *Pearson Correlation* digunakan untuk menentukan hubungan antara pengetahuan, sikap dan amalan terhadap jerawat vulgaris, manakala *One way ANOVA* serta *Independent t-test* digunakan untuk mengkaji hubungan antara ciri sosio-demografik dengan amalan terhadap jerawat vulgaris. Umur responden yang terlibat adalah di antara 13 sehingga 16 tahun. Hasil kajian menunjukkan bahawa 52.9% responden mempunyai tahap pengetahuan yang

baik. Dari segi sikap, 56.1% menunjukkan sikap yang positif, manakala 42.2% responden melaporkan amalan yang baik dalam menguruskan jerawat. Melalui keputusan yang dianalisis, terdapat hubungan yang signifikan antara sikap dan amalan terhadap jerawat vulgaris dengan korelasi pekali $r = 0.135$. Selain itu, terdapat hubungan yang signifikan yang diperhatikan antara tahap amalan terhadap jerawat vulgaris dengan ciri sosio-demografik pendapatan isi rumah. Oleh yang demikian, dapat disimpulkan bahawa amalan terhadap jerawat vulgaris boleh dipengaruhi oleh sikap dan ciri sosio-demografik pendapatan isi rumah dalam kalangan pelajar sekolah menengah di daerah Kota Bharu, Kelantan.

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ABSTRACT

Acne vulgaris is a common dermatological condition that significantly affects adolescents worldwide, particularly during puberty when hormonal fluctuations are at their peak. Although it is not life-threatening, acne can have profound impacts on an individual's psychological, emotional, and social well-being, often leading to issues such as low self-esteem, anxiety, and depression. In Malaysia, acne vulgaris remains a prevalent concern among school-aged adolescents, yet there is limited research focusing on their understanding, attitudes, and behaviours toward acne management. This study aims to examine the level of knowledge, attitude, and practice towards acne vulgaris among secondary school adolescents in the Kota Bharu district, Kelantan. A cross-sectional survey was conducted on 344 school students in school in the Kota Bharu district, Kelantan, using stratified sampling and convenience methods. Data were collected through a self-administered questionnaire. *Pearson Correlation* analysis was used to determine the relationship between attitude and practice towards acne vulgaris, while *One-way ANOVA* and *independent t-tests* were used to study the relationship between socio-demographic characteristics and practice towards acne vulgaris. The age of the participants involved was between 13 and 16 years. The findings revealed that 52.9% of respondents had a good level of knowledge. In terms of attitude, 56.1% demonstrated a positive attitude, whereas 42.2% of respondents reported good practices in managing acne. Through the results analysed, there was a significant relationship between attitude and practice towards acne vulgaris with a

correlation coefficient of $r = 0.135$. In addition, through the results analysed, there was a significant relationship observed between the level of practice towards acne vulgaris and the socio-demographic characteristics of household income. Therefore, it can be concluded that practices against acne vulgaris can be influenced by attitudes and socio-demographic characteristics of household income among secondary school students in the Kota Bharu district, Kelantan.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter gives the background of the study focusing on the knowledge, attitude, and practice towards acne vulgaris among adolescents in the District of Kota Bharu, Kelantan. It also outlined the problem statement, research aim, specific objectives, hypotheses, and the significance of the study. The purpose of this chapter was to provide a clear understanding of the context and rationale behind the research, as well as to highlight the key areas the study intended to explore.

1.2 Background of Study

Acne vulgaris is one of the most prevalent dermatological conditions worldwide. It is affecting both sexes, with peak prevalence among adolescents and young adults, although it can also occur at any age (Alnafisah et al., 2022a). It affects about 85% of adolescents aged 15 to 17, and for adults, up to 5% of men and 12% of women over 25 worldwide are also affected (Ayidh Alotaibi et al., n.d.-b). A cross-sectional study involving 409 participants revealed that facial acne is a prevalent issue among adolescents in Muar, with 71.1% of boys and 64.6% of girls affected (Hanisah et al., n.d.). According to the WHO, acne vulgaris can be classified as an inflammatory disorder of the skin's pilosebaceous unit (WHO, 2023). Acne lesions typically occur on the face, chest, or upper back (Oge et al., 2019). It can be identified by the appearance of comedones, inflammatory papules, and pustules to more severe forms like nodules and cysts, which can lead to scarring and psychological distress (Purdy & Deberker, 2007).

Acne vulgaris is widely acknowledged to have multiple contributing factors, including genetics. Twin studies have demonstrated that acne is highly heritable, with genetic factors accounting for 81% of the variation in the population (Luqman et al., 2020). Beyond genetics, the other factors that may influence the prevalence of acne vulgaris are increased activity of the sebaceous glands, excessive growth of follicular epidermal cells, which obstructs the pilosebaceous duct, microbial colonisation, and inflammation (Alnafisah et al., 2022). The anaerobic bacterium *Propionibacterium acnes* is a key factor in the development of acne, with androgen secretion serving as the primary trigger for acne in adolescents (Purdy & Deberker, 2007). Besides, high glycemic-index foods and drinks like sugary beverages, starchy foods, highly processed items, and skim milk appear to influence acne severity, along with factors such as psychological stress, tobacco smoke, and unhealthy skin can contribute to the severity and progression of acne (Oge et al., 2019).

Although acne is not associated with mortality, it can cause significant suffering due to permanent scarring, post-inflammatory hyperpigmentation, and a negative impact on self-image (Zari & Turkistani, 2017). Studies on the psychological impact of acne have documented dissatisfaction with appearance, embarrassment, self-consciousness, and low self-esteem (Tayel et al., 2020). Additionally, individuals with acne have increased rates of depression, anxiety, suicidal thoughts, and even suicide attempts, highlighting that acne vulgaris should no longer be viewed as just a skin disorder but needs to be reconsidered with greater attention (Taalsiewicz et al., 2012). Adolescence is a critical period marked by significant social, emotional, and physical changes.

The onset of acne vulgaris is frequently caused by significant physiological and hormonal changes during adolescence, which are primarily linked to an increase in sebum production. Sebum production has been extensively analysed as a significant factor in the pathogenesis and treatment of acne in several previous studies (Yosipovitch et al., 2007). A study conducted by Zaidi et al. (2023) revealed a significant correlation between acne onset and the age at puberty, indicating that puberty's hormonal changes, particularly the surge in sebum production, are responsible for the development of acne, especially in young adults. Additionally, a study by Burton et al., (1971) noted that acne emerges earlier in females than in boys, most likely due to earlier puberty onset, although its severity in boys throughout the late teenage years is consistent with the potent effects of androgens on sebaceous gland function. The rise in androgen levels during puberty is a contributing factor to the high incidence of acne vulgaris in adolescents across both sexes (Lynn et al., 2016).

In some cases, the development of acne in adolescents can be related to stress, although this accounts for all cases (Knaggs et al., 2004). It has been suggested that psychosomatics may play a role in the development of acne vulgaris, and stress may affect sebum production by binding to P receptors, which could result in acne (Nien How & Shamsudin, 2019). According to Yosipovitch et al. (2007), found there was a strong link between sebum production and the severity of papulopustular acne in male subjects under high-stress situations. In addition, it has been proven that psycho-neuroendocrine stress responses change dramatically across the menstrual cycle in females, possibly impacting acne severity at different times (Yosipovitch et al., 2007). Acne can have a profound impact on the lives of adolescents, which often leads to psychological distress, poor body image, low self-esteem, and even depression (Mostafa et al., 2019). Thus, it is important to comprehend the perspectives of

adolescents regarding acne, their attitudes toward treatment options, and management strategies to develop effective interventions and prevent the possible negative impact of acne.

1.3 Problem Statement

Acne vulgaris is a common issue among adolescents, affecting a large portion of the global population. In Malaysia, 67.5% of teenagers suffer from facial acne vulgaris (Miklos et al., 2011). Acne can cause a variety of issues, including physical discomfort, scarring, emotional misery, and even psychiatric illnesses including depression and suicide, resulting in significant costs (Nien How & Shamsudin, 2019). Individuals with facial acne are prone to experience psychological distress, as facial appearance plays a critical part in one's concept of body image (Hanisah et al., n.d.). The lack of knowledge, poor attitude, and practice towards acne often lead to inappropriate or delayed management, exacerbating the condition and psychological impact.

A study by Alnafisah et al. (2022) in Saudi Arab found that participants aged 21 to 30 had the highest level of good knowledge about acne (61.8%), while those under 21 had the lowest (50.8%). Regarding educational background, postgraduates demonstrated the highest percentage of good knowledge (52.3%), whereas participants with high school education had the highest percentage of poor knowledge (65.3%). A study by Uslu et al. (2008) stated that the high prevalence of acne vulgaris, in addition to people's lack of knowledge and misconceptions about the condition, emphasises the critical need for education on its complications and the significance of appropriate treatment (Uslu et al, 2008)

Additionally, regarding the attitude and practice towards acne vulgaris, even though nearly one-third of young people view acne as a significant problem, less than half of acne cases are diagnosed by a doctor, with many opting for self-management using over-the-counter (OTC) treatments, and affected individuals employ various strategies, including traditional medicine, visits to beauty clinics, increased water intake, and topical OTC agents, more often than seeking medical help during flare-ups (Jaber et al., 2020). A cross-sectional study of 420 students at Saudi universities found that 31.7% of students primarily relied on the internet for information on acne treatments, while only 11% sought advice from a doctor (MacHiwala et al., 2019). Patients who do not consult a dermatologist and often use OTC treatments that may be ineffective, leading to inflammatory acne lesions that can cause permanent scarring, especially if treatment is delayed or the acne is severe (Zari & Turkistani, 2017).

Acne vulgaris, which predominantly affects exposed areas such as the face and thorax, can significantly impact an individual's psychological and social well-being (Vilar et al., 2015). Furthermore, fear of negative evaluation based on appearance, known as social appearance anxiety, is common among adolescents. This heightened self-awareness often leads to feelings of guilt, shame, and diminished self-esteem, which can hinder the development of social skills and self-confidence (Haroon et al., 2019). As a result, many adolescents experience social isolation and anxiety, further exacerbating their emotional distress (Kenyon, 1966). These psychological challenges can impair relationships with others and disrupt academic and daily activities. Severe acne has also been linked to poorer academic performance, as patients may struggle to focus on schoolwork due to their emotional and social difficulties (Darji et al., 2017; Khoo, 1995).

Numerous studies regarding acne vulgaris have been conducted internationally, including in countries like Saudi Arabia, Jordan, Egypt, Pakistan, Lebanon, and Indonesia. These studies have surveyed various populations, such as acne patients, adolescents, university students, healthcare professionals, and the public. In contrast, there are only 5 studies regarding acne vulgaris in Malaysia. Most of the studies were focused on the prevalence of acne and its impact on psychological well-being and quality of life. There is a noticeable gap in studies that specifically examine the level of knowledge, attitudes, and practices related to acne management among adolescents, particularly in Kelantan and across Malaysia. Therefore, this study aims to address this gap by exploring these factors in greater detail among adolescents in the district of Kota Bharu, Kelantan.

1.4 Research Questions

The research questions for this study are as follows:

- i. What is the level of knowledge regarding acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan?
- ii. What is the level of attitude towards acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan?
- iii. What is the level of practice towards acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan?
- iv. What is the relationship between the knowledge, attitude, and practice towards acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan?
- v. What is the association between socio-demographic factors (e.g., age, gender, household income, family history) and the practice towards acne

vulgaris among adolescents in secondary schools in district of Kota Bharu, Kelantan?

1.5 Research Objectives

1.5.1 General Objective

The general objective of this study is to determine the knowledge, attitude, and practice towards acne vulgaris, and factors associated with the practice among adolescents in secondary schools in the district of Kota Bharu, Kelantan.

1.5.2 Specific Objectives

The research questions for this study are as follows:

- i. To determine the level of knowledge regarding acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan.
- ii. To determine the level of attitudes towards acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan.
- iii. To determine the level of practices towards acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan.
- iv. To examine the correlation between knowledge, attitude, and practice towards acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan.
- v. To examine the association between selected socio-demographic factors (age, gender, household income, and family history) and the practice towards acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan.

1.6 Research Hypothesis

Hypothesis 1 (H₀): There is no significant relationship between knowledge, attitude, and practice towards acne vulgaris among adolescents in secondary school in the district of Kota Bharu, Kelantan.

(H₁): There is a significant relationship between knowledge, attitude, and practice towards acne vulgaris among adolescents in secondary school in the district of Kota Bharu, Kelantan.

Hypothesis 2 (H₀): There is no significant association between socio-demographic factors (age, gender, household income and family history) and the practices towards acne vulgaris in the district of Kota Bharu, Kelantan.

(H₁): There is a significant association between socio-demographic factors (age, gender, household income and family history) and the practices towards acne vulgaris in the district of Kota Bharu, Kelantan.

1.7 Significance of the study

To determine the extent of knowledge, attitude, and practice towards acne among high school adolescents, this study will examine common myths and misconceptions about nutrition, hygiene practices, and treatment options. It is crucial to identify these flaws so that healthcare professionals and educators can create

individualised educational materials for effective acne management. Additionally, the study is expected to recognise existing techniques for managing acne, such as the use of unsuitable skin care products or untested home remedies, to encourage healthier options. Developing better knowledge and practices may lead to a decrease in the frequency and severity of acne-related issues.

During this period, adolescents are at a higher risk of experiencing social and psychological effects from acne due to their stage of development (where appearance and peer pressure are important). By analysing their attitudes and perceptions, the study intends to uncover the social stresses and psychological burdens associated with acne, which can assist in developing interventions that promote better treatment and adolescent self-esteem and social well-being. Additionally, the outcomes can also aid in implementing school health initiatives to promote acne education in school programs, such as offering classes on skin health or providing customised modules on adolescent health issues. This would help empower students to make informed health decisions, contributing to comprehensive adolescent health education.

1.8 Definitions of Operational Terms

There operational terms used in this research proposal are shown below:

Table 1.1 Operational and Conceptual Definitions

	Conceptual Definition	Operational Definition
Knowledge	understanding of or information about a subject that you get by experience or study, either known by one person or by people generally (Cambridge Dictionary, 2024).	In this study, knowledge refers to the awareness and understanding that adolescents have about acne vulgaris, including its causes, treatment options, and management of acne vulgaris. It will be

		assessed by using a self-administered questionnaire adapted from (Alnafisah et al., 2022).
Attitude	a feeling or opinion about something or someone, or a way of behaving that is caused by this (Cambridge Dictionary, 2024).	In this study, attitude refers to the adolescents' feelings, opinions, and behavioural predispositions toward the treatment of acne vulgaris. It will be assessed by using a self-administered questionnaire adapted from (Alnafisah et al., 2022).
Practice	action rather than thought or ideas (Cambridge Dictionary, 2024).	In this study, practice refers to the actual behaviours and actions taken by adolescents in response to acne vulgaris, including the specific treatments they use, the frequency of usage, and the sources of information they rely on when making decisions about treating their acne. It will be assessed by using a self-administered questionnaire adapted from (Alnafisah et al., 2022).
Acne	a disease of the skin in which small red spots appear, usually on the face and neck, especially in young people (Cambridge Dictionary, 2024).	In this study, acne is refers to an inflammation of the skin's sebaceous glands, leading to various skin manifestations such as whiteheads, blackheads, cysts, nodules,

		and pustules, primarily on the face (Alnafisah et al., 2022).
Adolescent	a young person who is developing into an adult (Cambridge Dictionary, 2024).	In the context of this study, the term "adolescent" refers to individuals who are in the transitional phase between childhood and adulthood, ranging from ages 13 to 16 in secondary schools in the District of Kota Bharu, Kelantan (Alnafisah et al., 2022).

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter provided an overview of the literature related to knowledge, attitude, and practice towards acne vulgaris among adolescents in secondary schools. The literature review included a compilation of various studies that presented different perspectives and findings from researchers on this topic. The outcomes of previous studies were discussed and analysed to support educational and health promotion efforts aimed at improving knowledge, attitude, and practice towards acne vulgaris. The final section of this chapter described the theoretical and conceptual framework used in this study.

2.2 Acne Vulgaris

The word "acne" is derived from the Greek term "acme," which appeared in the works of Aetius Amidenus and represented "skin eruption." The term "vulgaris" was interpreted as "common" (Zahr Allayali et al., 2017). Acne vulgaris is a persistent inflammatory condition affecting the pilosebaceous units, leading to the formation of skin lesions in regions abundant in sebaceous glands, such as the face, chest, shoulders, and upper back (Alrabiah et al., 2023). This inflammation manifested in various forms, such as pustules, blackheads, cysts, nodules, or whiteheads (Alnafisah et al., 2022b).

The most extensive epidemiological study data indicated that the prevalence of acne in the 12- to 25-year-old age group was approximately 85%, making it one of the most common skin disorders in this age group (Lal et al., 2021). According to the study by Zrekat (2023), acne could occur at any age, from older post-menopausal women to newborns, but it was most common during adolescence, affecting around 85% of

teenagers. This suggested that hormones might have had an impact on the amount of sebum produced or on changes in their constituents. During adolescence, androgens stimulated the enlarged sebaceous glands to produce more sebum, which became clogged and infected with *Propionibacterium acnes*, resulting in an inflammatory response (Al-Shobaili, 2013).

Acne vulgaris was also believed to have a genetic component, as it often ran in families and could be more severe in some cases. A study of nearly 100 sets of twins found that 98% of identical twins were affected, compared to 46% of dizygotic twins, although no specific genetic cause had been identified (Zrekat, 2023). Besides, diet also played a significant role in the development of acne, particularly diets high in glucose, protein, and dairy products like skim milk (Perveen et al., 2023). A systematic review of the literature in 2009 found that dairy products and high-glycemic-index foods increased the incidence of acne (Al-Shobaili, 2013). Conforti and colleagues discovered that high-glycemic-index foods triggered acne pathogenesis, whereas milk and chocolate aggravated acne (Conforti et al., 2021).

2.3 Knowledge on Acne Vulgaris

As stated, acne is one of the most common skin diseases in the world. However, despite the widespread nature of the disease, there was insufficient knowledge about the condition among many populations. This included a lack of understanding of the underlying causes, contributing factors, or aggravating conditions that influenced the development and severity of acne. There were also some misconceptions among the community that tarnished their level of knowledge on acne vulgaris. These common misconceptions often lead to misunderstandings and ineffective treatments, preventing individuals from managing the condition properly. A study in Saudi Arabia found that

adolescents under 21 often exhibited poor knowledge about acne vulgaris, with 50.8% of the participants, while postgraduates showed the highest percentage of good knowledge at 52.3% (Alnafisah et al., 2022a). Moreover, a study conducted in Assiut City, Egypt, found that a majority (91.1%) of adolescent students had poor knowledge of acne vulgaris (Mohamed et al., 2018).

Additionally, acne was frequently misattributed to unsuitable hygiene and diet, and numerous students were unaware of the hormonal factors that could contribute to the condition (Mohamed et al., 2018). According to a study conducted in Lebanon by Sakr et al. (2020), although 61.55% of the population surveyed were affected by acne, there was still limited information on its causes and treatments. Furthermore, even though 63.94% of participants correctly identified bacteria as a contributing factor, many still held onto common misconceptions. For instance, 64.74% of the participants had the erroneous belief that chocolate consumption could lead to acne development (Sakr et al., 2020). Certainly, this demonstrated the need for better education and awareness to correct these misconceptions, especially for adolescents in schools.

In a further study, the majority of adolescents (58.9%) used the Internet as their main source of information, with healthcare professionals following closely behind (Alnafisah et al., 2022a). Similarly, the study by Sakr et al. (2020) showed that, while hormones and skin type were widely recognised, many individuals who had acne sought guidance from family or friends rather than health professionals. Additionally, the study by Mohamed et al. (2018) found that 53.3% of the students' fathers and 45.1% of their mothers had at least some university education, indicating that the educational level of each parent might have played a role in the student's understanding of acne, although the results were more strongly supported for mothers than fathers.

In conclusion, acne vulgaris remained a widespread but poorly understood disease, especially among adolescents. Previous studies from diverse settings, as mentioned above, highlighted crucial knowledge gaps regarding the causes, contributing factors, and appropriate acne management. In addition, many people still believed in misconceptions about its triggers, such as poor hygiene and diet, with little awareness of hormonal changes and skin type. These false beliefs hindered effective treatment and management. Additionally, these misconceptions were also reinforced by the Internet and family members, who served as primary sources of information about acne. The results suggested that schools should have prioritised providing more accurate and accessible health education, as well as involving more health professionals in delivering trustworthy information on teenage acne.

2.4 Attitude towards Acne Vulgaris

The attitudes towards acne vulgaris exhibited significant variations across populations, which were influenced by various factors such as age, culture, and social beliefs. A study conducted in Assiut City found that 61.9% of the students surveyed exhibited a good attitude towards acne vulgaris (Mohamed et al., 2018). Nevertheless, previous studies from Lebanon and Saudi Arabia revealed that a significant proportion of people still opted for non-prescribed treatment, such as over-the-counter products and incorrect guidance from peers and family members (Alnafisah et al., 2022; Sakr et al., 2020). Over 50% of the participants in the Lebanese study used self-medication, indicating that they preferred treatments that were easily accessible to the general public and not dependent on professional medical consultation (Sakr et al., 2020). Alnafisah et al. (2022) revealed that over-the-counter treatment was preferred by younger individuals aged 21–30 years, while those aged 31–40 years showed positive attitudes

towards prescription drugs. This data indicated that age had a significant impact on the development of attitudes, with young individuals being more likely to embrace convention while older individuals tended to take advice from experts.

Attitudes were also influenced by cultural factors. The study by Luqman et al. (2020) revealed that almost half (48%) of the respondents showed a preference for traditional treatments, while 86% still preferred medical advice, suggesting a dual trust in cultural practices and medical expertise. In comparison, 63.2% of those surveyed at Al-Hada Military Hospital in Saudi Arabia had a higher likelihood of seeking medical guidance, suggesting a greater tendency towards professional advice in this population (Sameer Alam & Sameer Alam, 2017). However, this study also discovered that a significant number of people were uncertain about how to alleviate acne, highlighting insufficient knowledge even among those who consulted healthcare providers.

To conclude, attitudes towards acne vulgaris across various populations were shaped by several factors like societal, cultural, and age-related influences. Even though it was generally accepted that acne should be treated, numerous people still resorted to using non-pharmaceutical options such as traditional remedies, over-the-counter products, or sought guidance from peers and family members. Older individuals seemed to have positive attitudes towards prescribed medication, whereas the younger generation appeared to be more open to non-prescription alternatives that were easy to access. Some individuals relied on herbal and traditional remedies due to cultural beliefs, although guidance from medical professionals remained valued. Based on these findings, it appeared that attitudes towards acne varied and were dependent on context. Therefore, education should have been provided to promote effective management of acne in various populations as well as among high school adolescents.

2.5 Practice in Managing Acne Vulgaris

The approaches utilised for treating acne vulgaris exhibited significant differences across populations, reflecting a blend of knowledge and attitudes. Although some individuals exhibited good practice, a significant number continued to use ineffective or detrimental methods. Tran et al. (2019) demonstrated that 53.4% of participants and 46.6% had good and poor practice, respectively. Meanwhile, a study conducted in Saudi Arabia revealed 28% of the healthcare physicians surveyed had good practice on acne and 72% had poor practice (Ayidh Alotaibi et al., n.d.). This indicated that there were still gaps in the practices of acne, even within healthcare settings. Another study conducted in Karnataka found that despite 55% of participants being knowledgeable about acne, many chose to self-medicate and used home remedies, underscoring the discrepancy between awareness and evidence-based practices (Hulmani et al., 2017).

Similarly, a study conducted in Saudi Arabia showed that 52.4% of them had employed non-prescription treatment, with cleansers (59.5%) and home remedies (23.3%) being their popular choice (Alnafisah et al., 2022). Moreover, a study by Sameer Alam & Sameer Alam (2017) found that while 43.4% of participants regularly washed their faces with cleansers, only 8.2% prioritised healthy eating, and 57.4% reported to removing acne by engaging in harmful practices like squeezing pimples. Additionally, 13.2% of participants used self-prescribed medications. These findings suggested that while there was some awareness of proper skin care practices, more comprehensive education was necessary to promote effective management and prevent the worsening of acne.

The results showed that practices towards acne vulgaris treatment differed significantly among individuals, with many people, including healthcare professionals, resorting to treating the condition without evidence-based approaches. Teenagers, especially those in high school, tended to self-medicate and often sought guidance from the Internet and peers or family members. This practice was worrying because it could lead to poor acne management and worsen the condition. Most younger generations that lacked knowledge regarding effective acne treatment preferred to use available and accessible treatments such as over-the-counter products and home remedies that were not always appropriate for their specific skin condition. In order to address these issues, effective and targeted educational interventions had to be implemented to promote practices that adhered to evidence-based standards, particularly among younger populations. Thus, raising awareness facilitated recognition of the need for professional consultation, leading to appropriate skincare routines and preventing the use of ineffective or harmful practices.

2.6 Association between knowledge, attitude, and practice of acne vulgaris

The association between knowledge, attitude, and practice played a critical role in the management of acne vulgaris. A previous study conducted at Cenderawasih University found a weak correlation between knowledge and attitudes towards acne vulgaris among nursing students ($r = 0.171$), with only 46.1% of respondents demonstrating both good knowledge and positive attitudes (Erlin Situmorang, 2020). This suggested that knowledge alone did not strongly influence attitudes.

In the context of adolescence, this age group might have exhibited different trends, as they typically had limited access to formal health education compared to health science students. Factors such as exposure to accurate information, peer

influence, and the school environment might have shaped adolescents' attitudes and practices, potentially differing from those observed in health-educated populations. However, current evidence remained limited, as few studies had explored the association between knowledge, attitude, and practice towards acne vulgaris, particularly among adolescents. Therefore, this study aimed to fill a gap in the existing literature by investigating whether there was an association between knowledge, attitude, and practice towards acne vulgaris among adolescents in secondary schools in the district of Kota Bharu, Kelantan.

2.7 Association between socio-demographic factors and practice of acne vulgaris

Many factors affected practice regarding acne vulgaris. The factors that were highlighted in this study were age, gender, skin type, and family history.

2.7.1 Age

The age of the participant played a role in how well they managed their acne. Previous studies yielded inconsistent results on the influence of age on acne treatment practice. According to a study by Tran et al. (2019), there was no association between age and practice of acne management, suggesting that individuals' practice towards acne might have been more influenced by other factors than their age. Conversely, a study among healthcare physicians by Ayidh Alotaibi et al. (n.d.) found age-related differences towards practice, with people aged 25 – 34 having the higher level of poor practices (80%) compared with those aged 35 – 44, who exhibited good practice with 43.6%, possibly due to more knowledge and experience on acne management.

In the context of adolescents, hormone fluctuations and a lack of knowledge had repercussions on their acne management. Younger secondary school students, which

who were those aged 13, lacked knowledge and experience in managing acne, leading them to rely on unverified home remedies or peer advice. In contrast, students aged 16 had more exposure to effective treatments and skincare practices due to increased experience or health education. Thus, this study examined how age influenced practice towards acne among secondary school students in the District of Kota Bharu, Kelantan, gaining insights into how different age groups within the adolescent population managed acne. This highlighted important differences and informed targeted intervention and showed age influenced the level of practice towards acne vulgaris among secondary schools in the district of Kota Bharu, Kelantan.

2.7.2 Gender

Practices towards acne vulgaris might have been significantly influenced by gender variations. It was often assumed that females were more likely to seek treatment because of societal beauty standards that emphasised physical appearance. A study conducted among acne patients by Tran et al. (2019) showed that there was a correlation between gender and the participants' practices of acne, with women having better practices than men.

In contrast, a previous study conducted among 109 healthcare physicians by Ayidh Alotaibi et al. (n.d.) showed that 28.3% of males and 28.6% of females practised good acne management, while 71.7% of males and 71.4% of females reported poor practices. The outcomes in this group indicated that, despite the assumption that women were more proactive in seeking treatment, both genders in this group exhibited similar acne management behaviours. This suggested that gender did not necessarily play a significant role in shaping acne management practices, particularly among those who had higher health savvy, such as this population.

However, considering adolescents who might not have been introduced to healthcare education regarding effective acne treatment, especially in secondary school, they relied more greatly on internet-based practices, cultural beliefs, and advice from peers or family, contributing to differences in how males and females approached acne care. Therefore, this study aimed to determine the association between gender and acne management practices among adolescents, with the assumption that gender might have played a larger role in this demographic.

2.7.3 Household income

Research indicated that socioeconomic factors, particularly household income, significantly influenced various aspects of healthcare and financial practices towards acne. A study conducted in Canada demonstrated that socioeconomic status significantly affected access to dermatological care, indicating that individuals in lower-income groups were less likely to consult dermatologists compared to higher-income groups (17% vs. 24%, respectively) (Haider et al., 2006). Similarly, a study conducted among Dutch adolescents found that lower household income levels were associated with reduced healthcare utilisation for acne treatment, specifically boys from low-income backgrounds were less likely to seek care compared to their middle-income counterparts (Witkam et al., 2024). However, this study also revealed no significant overall association between household income and healthcare utilisation for acne treatment, suggesting that this relationship was multifaceted and influenced by factors such as sex and ethnicity (Witkam et al., 2024).

In conclusion, the reviewed studies emphasised that household income played a significant role in influencing practices towards acne vulgaris management. Financial constraints often limited access to specialist care and appropriate treatments, particularly among lower-income groups. Therefore, this study examined how

household income influenced practice towards acne among secondary school students in the District of Kota Bharu, Kelantan, gaining insights into how different levels of household income within the adolescent population managed acne.

2.7.4 Family history

Acne vulgaris could have been caused by various factors, including family history, which was a known factor in its appearance and management. The possible influence of genetic factors on the development of acne was suggested by the finding that relatives of affected individuals had a higher risk of developing acne compared to unrelated individuals (Evans et al., 2005). A study employing the twin model by Bataille et al. (2002) confirmed that acne was a highly heritable disease with considerable additive genetic influences. Adolescents with a familial predisposition to acne were more prone to developing the condition and might have emulated the treatments utilised by their relatives. There was a limited number of studies related to family history and practices towards acne vulgaris, both internationally and in Malaysia.

A study in Karnataka revealed that persons with a familial predisposition to acne were more inclined to pursue early treatment, although they still exhibited unfavourable practices, such as utilising over-the-counter drugs or squeezing pimples (Hulmani et al., 2017). This indicated that whereas familial knowledge might have enhanced awareness of acne, it did not necessarily result in the implementation of effective acne management techniques. The hereditary connection to acne could have shaped an individual's comprehension of the problem, but misinformation or outdated practices might have still been passed down through families.

According to Valdez et al. (2010), familial history could have aided in the early evaluation and management of illnesses, leading significantly to improved patient

education and preventive measures. Hence, this study aimed to determine the association between family history and acne management practices in adolescents, hypothesising that the presence of a family history of acne in this population might have played a greater role in influencing their practices.

2.8 Theoretical and Conceptual Framework

The Health Belief Model (HBM) was a well-established framework used to understand and promote health behaviours, making it a suitable theoretical approach for this study on acne vulgaris. The model approached health behaviour by considering how individuals perceived health issues and their attitudes towards the benefits of health promotion measures (Sheeran and Abraham, 1996). The HBM comprises a range of elements such as perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action.

Perceived susceptibility was defined as the degree to which people perceived their likelihood of being susceptible to a disease or condition. Adolescents who were perceived as more susceptible had a greater tendency to take proactive actions. Perceived severity referred to the extent to which individuals believed the condition or disease could have had significant consequences on their well-being, such as affecting their physical appearance, emotional health, or social interactions. The perceived severity would have encouraged them to engage in behaviours aimed at managing or preventing it.

Furthermore, perceived benefits referred to the favourable outcomes that individuals anticipated from pursuing approaches to handle the condition. Conversely, perceived barriers represented the challenges or obstacles that might have discouraged people from taking action. These might have involved financial burdens, skincare

products that were unattainable, or the belief that acne treatments were not effective. Cues to action could have been the advice from healthcare professionals, social influence, or Internet exposure, which might have encouraged them to engage in behaviour that promoted good health.

Along with these primary constructs, the HBM also took into account modifying factors that influenced health behaviour, such as socio-demographic factors. These factors could have shaped an individual's perception of their susceptibility and severity of the disease, as well as their response to perceived benefits and barriers. The HBM model was utilised in this study to evaluate modifying factors, such as socio-demographics like age, gender, skin type, and family history, that might have altered their key constructs in the HBM. For instance, adolescents with a history of acne in their family might have perceived themselves to be more susceptible to getting acne, while differences in gender and skin type could have influenced how acne was experienced and managed.

In general, the HBM provided a useful framework for comprehending the reasons and hindrances that impacted adolescents' acne management practices in this study, aiding in identifying factors that may have contributed to or hindered effective acne practices. Overall, this concept was available to determine the knowledge, attitude, and practice towards acne vulgaris among adolescents in secondary schools in Kelantan.